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WASTEWATER COLLECTION SYSTEM COMPLIANCE INSPECTION

GREATER NEW HAVEN WATER POLLUTION CONTROL AUTHORITY NEW HAVEN, CONNECTICUT

INSPECTION REPORT

Inspection Dates:
December 16 – 18, 2013

Report Date:
April 18, 2014

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I. INTRODUCTION

On December 16 - 18, 2013 the U.S. Environmental Protection Agency (EPA), with assistance from PG Environmental, LLC (PG), an EPA contractor, and the State of Connecticut Department of Energy and Environmental Protection (CT DEEP) inspected the Greater New Haven Water Pollution Control Authority's (GNHWPCA's) wastewater collection and conveyance system. The EPA Inspection Team (composed of EPA and PG staff) assessed the GNHWPCA's operation and maintenance of the wastewater collection and conveyance system, as well as combined sewer overflow (CSO) and sanitary sewer overflow (SSO) response and reporting procedures. The EPA Inspection Team evaluated compliance with GNHWPCA's National Pollutant Discharge Elimination System (NPDES) Wastewater Discharge Permit No. CT0100366 (Permit) and the Connecticut General Statues (CGS). Refer to Appendix A for a copy of the Permit. The inspection consisted of the following major activities:

- Discussions with representatives from the GNHWPCA regarding the operations and maintenance of the wastewater collection and conveyance system, SSO response and reporting procedures, collections system drawings and manuals, and capital improvement program.
- Observation of the wastewater collection system field crew activities.
- Inspection of several GNHWPCA's regulators, combined sewer outfalls (CSOs), and pump stations.
- An examination of the GNHWPCA's wastewater collection system operations, maintenance, and SSO response and reporting records.

The inspection did not include an evaluation of the Water Pollution Abatement Facility (WPAF). This report summarizes the results of the inspection. The following personnel were involved in the inspection of the GNHWPCA's wastewater collection and conveyance system (refer to Appendix B for the inspection attendance log sign-in sheets):

GNHWPCA Representatives:	Sidney Holbrook, Executive Director Gary Zrelak, Director of Operations Thomas Sgroi, P.E., Director of Engineering Bruce Kirkland, P.E., Senior Engineer Gabriel Varca, Director of Finance and Administration Rick Hurlburt, Collections Superintendent Jane Stahl, Consultant John Torre, Project Manager, CH2M Hill Kevin Dahl, P.E., Regional Business Manager, CH2M Hill Christian Smith, Maintenance Manager, CH2M Hill Scott Carr, Maintenance Manager, CH2M Hill Rich Nasse, Collections Lead Operator, CH2M Hill Jessie Whitmore, Industrial Pretreatment Coordinator, CH2M Hill
City of New Haven Representative:	Larry Smith, Acting City Engineer
EPA Inspection Team:	Neil Handler, EPA Region 1 John Melcher, EPA Region 1 Stacy Pappano, Sanitary Engineer, CT DEEP Craig Motasky, Environmental Analyst, CT DEEP

Craig Blett, PG Environmental, LLC
Jared Richardson, PG Environmental, LLC

Section II of this report presents the EPA Inspection Team's key findings with respect to Permit requirements. Section III presents background information on GNHWPCA's wastewater collection and conveyance system and WPAF. Section IV presents the assessment of compliance with Permit requirements. Section V presents a summary of assets visited during the inspection.

II. KEY FINDINGS

The EPA Inspection Team conducted an extensive review of the GNHWPCA's performance in operating and maintaining its wastewater collection system and its CSO and SSO response and reporting procedures. The EPA Inspection Team identified a number of key findings during the inspection, which are summarized below:

- The GNHWPCA experienced reported and possible unreported dry weather overflows (DWOs) from the combined sewer portion of its wastewater collection system.
- The GNHWPCA experienced potential unreported and unpermitted discharges (i.e., SSOs) from its wastewater collection system.
- The GNHWPCA did not adequately report SSOs from its wastewater collection system.
- The GNHWPCA lacked the development and implementation of a formal operation and maintenance program for its wastewater collection system, including lack of standard operating procedures (SOPs), training, a large-diameter pipe cleaning program, and a force main inspection program. The GNHWPCA also failed to regularly inspect and maintain CSO regulators and to maintain pump stations.

Refer to the Section IV of this report for specific details.

III. BACKGROUND

The GNHWPCA is authorized to operate the wastewater collection system and discharge under the NPDES Permit and the CGS. The GNHWPCA was created in August 2005 as a regional public authority, pursuant to §§22a-500 to 22a-519 of the CGS.

GNHWPCA representatives provided a presentation during the initial day of the inspection, describing the wastewater collection and conveyance system and the WPAF. Additional details were provided in subsequent discussions with GNHWPCA representatives over the course of the inspection.

The East Shore WPAF treats wastewater generated from four member communities including the City of New Haven and the towns of Hamden, East Haven, and Woodbridge. The WPAF also provides treatment for a small portion of North Branford sewer customers through an agreement with the town. The WPAF serves a population of approximately 199,780 people.

The East Shore WPAF discharges to New Haven Harbor, with an average daily flow of approximately 29 million gallons per day (mgd). Under wet weather conditions, the facility can provide primary treatment for flows of up to 100 mgd and secondary treatment for flows up to 60 mgd. Flows in excess of the secondary treatment capacity bypass treatment and are combined with treated secondary effluent prior to chlorination and discharge. The maximum daily limits for TSS and BOD are waived under bypass conditions, but average monthly limits must still be met.

According to GNHWPCA representatives, a plant upgrade project is being planned to add a wet-weather treatment train that will increase the primary treatment capacity at the WPAF to 187 mgd. The project will also provide a new electrical system, add backup generators, provide sludge storage and thickening,

add enhanced nitrogen reduction, and construct a new odor control system. As mentioned in the Introduction, the WPAF was not evaluated as a component of the inspection.

The GNHWPCA's wastewater collection and conveyance system is a blend of separate sewers and combined sewers. During wet weather, combined sewers are designed to transport both sanitary waste flows and stormwater to the WPAF. Flows which exceed the capacity of the combined sewer are discharged through permitted combined sewer outfalls (CSOs) to various receiving waters. Separate sewers are designed to transport only sanitary waste.

Wastewater is conveyed via approximately 490 miles of sanitary sewer lines, approximately 70 miles of combined sewer lines, 30 pump stations, and 8 siphons/pressure sewers to the East Shore WPAF. Information presented by GNHWPCA indicated that the combined sewer system includes 18 permitted CSOs (14 active, 4 closed) and 24 CSO regulators (19 active, 5 closed), which, during wet weather, discharge excess flows to the New Haven Harbor, Quinnipiac River, Mill River, and West River. The Truman CSO Storage Tank was constructed in 2006 to provide off-line storage in the combined sewer system. A portion of wet weather flows in the Boulevard Trunk Sewer can be siphoned off and stored in the tank, then pumped back to the Boulevard Trunk Sewer once dry weather flow resumes.

GNHWPCA has installed continuous flow monitoring devices on many CSO regulators, following a CWA Section 308 Information Request Letter sent by EPA on February 14, 2012. CSO flow metering services are provided under contract with CSL Services, Inc. The GNHWPCA is planning to complete an update of their collection system hydraulic model in July 2015 and to complete an update of their Long Term Control Plan in July 2016.

GNHWPCA does not own, operate, or maintain storm drainage systems (i.e., catch basins). These components, as well as the implementation of the General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems issued by CT DEEP (MS4 Permit), are the responsibility of the City of New Haven. The GNHWPCA does not own any park lands or public spaces, school or government properties, or City of New Haven right-of-ways.

At the time of inspection, the GNHWPCA contracted with CH2M Hill, Operation Management International, Inc. (CH2M Hill) to operate and maintain the wastewater collection and conveyance system, pump stations, and the WPAF. Both GNHWPCA and CH2M Hill employees were present during the inspection as representatives for the GNHWPCA. As part of the contract, CH2M Hill was responsible for routine cleaning of all sanitary and combined sewer mains and manholes at a minimum frequency of once every three years. Repairs and minor rehabilitations were funded by CH2M Hill up to an annual allowance agreed upon by CH2M Hill and the GNHWPCA. Repair costs above the allowance were reimbursed by the GNHWPCA. The GNHWPCA was responsible for funding, designing, and managing capital projects for the wastewater collection and conveyance system.

The contract with CH2M Hill was due to expire on January 3, 2014. Following the expiration of this contract, the GNHWPCA has proposed to assume collection systems operation and maintenance responsibilities. GNHWPCA staff will now be responsible for inspecting the wastewater collection system and performing "hot spot" responses, but regular cleaning and maintenance will be performed under a new contract to be bid in early 2014. Synagro Technologies, Inc. (Synagro), whose current responsibility is to operate the onsite sludge incinerator, will continue to be involved with the incinerator operation and also will assume additional responsibilities for performing maintenance of the pump stations and the WPAF.

IV. ASSESSMENT OF COMPLIANCE WITH PERMIT REQUIREMENTS

The EPA Inspection Team was tasked with assessing the operations and maintenance of the GNHWPCA's wastewater collection and conveyance system. The EPA Inspection Team identified and

documented several findings that are related to the GNHWPCA's compliance with its NPDES Permit. These findings are summarized in Table 1 below.

Table 1. Summary of Findings

Findings	Permit/Regulatory References
Unauthorized Discharges and Reporting / Recordkeeping	
Finding 1: Occurrence of Dry Weather Overflows (DWOs) from the GNHWPCA's wastewater collection system, one of which may not have been reported to CT DEEP a. DWO at CSO 003 on August 14, 2012. b. DWO at CSO 009 on January 25, 2013. c. DWO at CSO 012 on March 1, 2013.	**SECTION 8, RECORDING AND REPORTING OF VIOLATIONS, ADDITIONAL TESTING REQUIREMENTS, BYPASSES, MECHANICAL FAILURES, AND MONITORING EQUIPMENT FAILURES, (C)** of the Permit and **Section 22a-430-3(k) (1), Bypass,** of the Regulations of Connecticut State Agencies (RCSA) *"The Permittee shall not at any time bypass the collection system or treatment facilities or any part thereof unless (A) (i) such bypass is unanticipated, unavoidable, and necessary to prevent loss of life, personal injury or severe property damage, and (ii) there were no feasible alternatives to the bypass, including but not limited to the use of auxiliary or back-up treatment facilities, retention of untreated wastes, stopping the discharges, or maintenance during normal periods of equipment downtime; or (B) the Permittee receives prior written approval of the bypass from the commissioner in order to perform essential maintenance, and the bypass does not cause effluent limitations to be exceeded."* **SECTION 9, COMBINED SEWER OVERFLOWS, (A)** of the Permit requires: *"The Permittee shall use, to the maximum extent practicable, available sewerage system transportation capabilities for the conveyance of combined sewage to treatment facilities. The Permittee is authorized to discharge combined sewage flows from combined sewer overflow outfalls listed in Attachment 3 in response to wet weather flow, i.e. rainfall or snowmelt conditions, when total available transportation, treatment and storage capabilities are exceeded."* **SECTION 9, COMBINED SEWER OVERFLOWS, (A)(1)(a)** of the Permit states: *"Dry weather overflows are prohibited."*

Findings	Permit/Regulatory References
Reporting / Recordkeeping	
Finding 2: Potential unreported and unpermitted discharges (i.e., SSOs) have occurred in the GNHWPCA's wastewater collection system a. Seven instances of potential unreported and unauthorized discharges (i.e., SSOs), during period of review. b. Inadequate system for recording and reporting bypasses.	**SECTION 8, RECORDING AND REPORTING OF VIOLATIONS, ADDITIONAL TESTING REQUIREMENTS, BYPASSES, MECHANICAL FAILURES, AND MONITORING EQUIPMENT FAILURES, (C)** and **SECTION 9, COMBINED SEWER OVERFLOWS, (A)(1)(a)** of the Permit and **Section 22a-430-3(k) (4), Bypass,** of the RCSA. **Section 8 (C)** of the Permit states: *"The Department of Environmental Protection, Bureau of Water Protection and Land Reuse, Planning and Standards Division, Municipal Facilities Section (860) 424-3704, the Department of Public Health, Water Supply Section (860) 509-7333 and Recreation Section (860) 509-7297, and the local Director of Health shall be notified within 2 hours of the Permittee learning of the event by telephone during normal business hours. If the discharge or bypass occurs outside normal working hours (8:30 a.m. to 4:30 p.m. Monday through Friday), notification shall be made within 2 hours of the Permittee learning of the event to the Emergency Response Unit at (860) 424-3338 and the Department of Public Health at (860) 509-8000. A written report shall be submitted to the Department of Environmental Protection, Bureau of Water Protection and Land Reuse, Planning and Standards Division, Municipal Facilities Section within five days of the Permittee learning of each occurrence, or potential occurrence, of a discharge or bypass of untreated or partially treated sewage."* **Section 9 (A)(1)(a)** of the Permit states: *"During wet weather flows, the Permittee is authorized to discharge stormwater/wastewater from combined sewer outfalls listed in Attachment 3. Dry weather overflows are prohibited. Any other discharge from the outfalls listed in Attachment 3 constitutes a bypass and is subject to the requirements of Section 8 of this permit."* **Section 22a-430-3(k) (4), Bypass,** of the RCSA states: *"If any bypass occurs or may occur, the Permittee shall, within two hours of becoming aware of such condition or need, notify the director during normal business hours (566-3245), and the department's Emergency Response Unit at all other times (566-3338) and submit within five days a written report including the cause of the problem, duration including dates and times and corrective action taken or planned to prevent other such occurrences."*

Findings	Permit/Regulatory References
Operation and Maintenance	
Finding 3: Failure to develop and/or implement a formal operations and maintenance program • GNHWPCA lacks SOPs, written forms, and documentation for collection system activities. • GNHWPCA lacks a formal training program for collection system activities, including not having a training manual or documentation of training activities. • GNHWPCA lacks a comprehensive, large-diameter collection system cleaning program. • GNHWPCA lacks a formal program for force main inspections and operation and maintenance. • GNHWPCA lacks SOPs, training, and documentation for identifying or removing "hot spots" from the wastewater collection system. • GNHWPCA lacks an easement maintenance program.	**SECTION 1, GENERAL PROVISIONS, (B)** of the Permit and **Section 22a-430-3(h) Duty to Mitigate** and **Section 22a-430-3(f) Proper Operation and Maintenance** of the RCSA. **Section 22a-430-3(h), Duty to Mitigate,** of the RCSA states: *"The Permittee shall take all reasonable steps to minimize or prevent any discharge in violation of the permit or any discharge which has a reasonable likelihood of adversely affecting human health or the environment."* **Section 22a-430-3(f), Proper Operation and Maintenance,** of the RCSA states: *"The Permittee shall at all times properly operate and maintain all facilities and systems and parts thereof for wastewater collection, storage, treatment and control which are installed or used by the Permittee to achieve compliance with the terms and conditions of the permit. Proper operation and maintenance includes but is not limited to effective performance, adequate funding, and adequate operator staffing and training, including the employment of certified operators as may be required by the commissioner pursuant to sections 22a-416-1 through 22a-416-10 of the Regulations of Connecticut State Agencies, as amended, and adequate laboratory and process controls, including appropriate quality assurance procedures. The commissioner shall, as a condition of a permit or by issuance of an order in accordance with sections 22a-416 through 22a-471 of the Connecticut General Statutes as amended, require the installation and operation of back-up or auxiliary facilities or similar systems or the inventory of spare parts and appurtenances."*

Findings	Permit/Regulatory References
Finding 4: Failure to provide adequate backup or auxiliary power or appurtenances for the Truman CSO Storage Tank.	**SECTION 4, GENERAL LIMITATIONS AND OTHER CONDITIONS, (G)** of the Permit, **SECTION 1, GENERAL PROVISIONS, (B)** and **Section 22a-430-3(f), Proper Operation and Maintenance,** of the RCSA. **SECTION 4(G)** of the Permit states: *"The Permittee shall maintain an alternate power source adequate to provide full operation of all pump stations in the sewerage collection system and to provide a minimum of primary treatment and disinfection at the water pollution control facility to insure that no discharge of untreated wastewater will occur during a failure of a primary power source."* **Section 22a-430-3(f), Proper Operation and Maintenance,** of the RCSA states: *"The Permittee shall at all times properly operate and maintain all facilities and systems and parts thereof for wastewater collection, storage, treatment and control which are installed or used by the Permittee to achieve compliance with the terms and conditions of the permit. Proper operation and maintenance includes but is not limited to effective performance, adequate funding, and adequate operator staffing and training, including the employment of certified operators as may be required by the commissioner pursuant to sections 22a-416-1 through 22a-416-10 of the Regulations of Connecticut State Agencies, as amended, and adequate laboratory and process controls, including appropriate quality assurance procedures. The commissioner shall, as a condition of a permit or by issuance of an order in accordance with sections 22a-416 through 22a-471 of the Connecticut General Statutes as amended, require the installation and operation of back-up or auxiliary facilities or similar systems or the inventory of spare parts and appurtenances."*
Finding 5: Failure to inspect and maintain CSO regulators on a monthly basis in accordance with the Long Term Control Plan and associated Nine Minimum Controls report.	**SECTION 4, GENERAL LIMITATIONS AND OTHER CONDITIONS, (O)** of the Permit, **SECTION 1, GENERAL PROVISIONS, (B)** of the Permit and **Section 22a-430-3(h) Duty to Mitigate** of the RCSA. **SECTION 4(O)** of the Permit states: *"The Permittee shall operate and maintain all processes as installed in accordance with the approved plans and specifications and as outlined in the associated operation and maintenance manual."* **Section 22a-430-3(h) Duty to Mitigate** of the RCSA states: *"The Permittee shall take all reasonable steps to minimize or prevent any discharge in violation of the permit or any discharge which has a reasonable likelihood of adversely affecting human health or the environment."*

Findings	Permit/Regulatory References
Finding 6: Failure to adequately maintain pump station in accordance with routine and preventative maintenance procedures.	**SECTION 1, GENERAL PROVISIONS, (B)** of the Permit and **Section 22a-430-3(f), Proper Operation and Maintenance,** of the RCSA. **Section 22a-430-3(f), Proper Operation and Maintenance,** of the RCSA states: *"The Permittee shall at all times properly operate and maintain all facilities and systems and parts thereof for wastewater collection, storage, treatment and control which are installed or used by the Permittee to achieve compliance with the terms and conditions of the permit. Proper operation and maintenance includes but is not limited to effective performance, adequate funding, and adequate operator staffing and training, including the employment of certified operators as may be required by the commissioner pursuant to sections 22a-416-1 through 22a-416-10 of the Regulations of Connecticut State Agencies, as amended, and adequate laboratory and process controls, including appropriate quality assurance procedures. The commissioner shall, as a condition of a permit or by issuance of an order in accordance with sections 22a-416 through 22a-471 of the Connecticut General Statutes as amended, require the installation and operation of back-up or auxiliary facilities or similar systems or the inventory of spare parts and appurtenances."*
Combined Sewer Overflows	
Finding 7: Failure to notify Commissioner of changes, alterations, and/or eliminations of CSO designations.	**SECTION 9, COMBINED SEWER OVERFLOWS, (A)** of the Permit states: *"The locations of outfalls and regulators listed in Attachment 3 are taken from Department records. Any information on the locations of any outfalls and regulators in addition to or in conflict with the information in Attachment 3 shall be submitted to the Commissioner within 30 days of the date of issuance of this permit or the date the Permittee becomes aware of such information, whichever is earlier."*

Details for each finding are provided below.

Finding 1: Occurrence of Dry Weather Overflows (DWOs) from the GNHWPCA's wastewater collection system

Based on a document review conducted by the EPA Inspection Team as a component of this inspection, DWOs were found to have occurred at several of the GNHWPCA's CSO outfall locations.

Section 22a-430-3(k) of the Regulations of Connecticut State Agencies (RCSA) and SECTION 9 (A)(1)(a) of the Permit prohibit such events.

Section 22a-430-3(k) shall apply in all instances of bypass, including bypass of the treatment plant or a component of the sewage collection system. This section states:

> *"The Permittee shall not at any time bypass the collection system or treatment facilities or any part thereof unless (A) (i) such bypass is unanticipated, unavoidable, and necessary to prevent loss of life, personal injury or severe property damage, and (ii)*

> *there were no feasible alternatives to the bypass, including but not limited to the use of auxiliary or back-up treatment facilities, retention of untreated wastes, stopping the discharges, or maintenance during normal periods of equipment downtime; or (B) the Permittee receives prior written approval of the bypass from the commissioner in order to perform essential maintenance, and the bypass does not cause effluent limitations to be exceeded."*

SECTION 9 (A) of the Permit states:

> *"The Permittee is authorized to discharge combined sewage flows from combined sewer overflow outfalls listed in Attachment 3 in response to wet weather flow, i.e. rainfall or snowmelt conditions, when total available transportation, treatment and storage capabilities are exceeded."*

SECTION 9 (A)(1)(a) of the Permit states:

> *"Dry weather overflows are prohibited."*

The EPA Inspection Team found, based on GNHWPCA records reviewed, that GNHWPCA had reported an unauthorized discharge of wastewater from the CSO 003 location during August 14–16, 2012. Specifically, a DWO of wastewater was reported by GNHWPCA from CSO 003, located at E.T.G. Boulevard and Orange Avenue, on August 14, 2012. The root cause of the overflow was documented and reported as a failure of a brick weir wall. The estimated quantity/volume discharged to the West River was 1.2 million gallons. Refer to Appendix C1 for GNHWPCA's CT DEEP bypass reporting forms and associated work order documentation for this DWO event.

The EPA Inspection Team found, based on GNHWPCA records reviewed, that GNHWPCA had reported an unauthorized discharge of wastewater, discovered on January 25, 2013, from the CSO 009 location. . Specifically, a DWO of wastewater was reported by GNHWPCA from CSO 009, located at Grand Avenue and James Street, from January 25, 2013 until January 26, 2013. The root cause of the overflow was documented and reported as a failure of a brick weir wall. The estimated quantity/volume discharged to the Mill River was 25,000 gallons. Refer to Appendix C2 for GNHWPCA's CT DEEP bypass reporting forms and associated CSO flow monitoring report summary table for this DWO event. It should also be noted that GNHWPCA's January 2013 CSO flow monitoring report summary table for CSO 009 was missing data and/or did not identify activation of the CSO flow meter from January 18–27, 2013, a time period including the DWO event.

The EPA Inspection Team found, based on GNHWPCA records reviewed, that GNHWPCA had an unauthorized discharge of wastewater from the CSO 012 location during March 1-7, 2013. Specifically, a DWO of wastewater occurred from CSO 012, located at 75 Mitchell Drive east of Nicoll Street. Discussions with GNHWPCA representatives indicated the root cause of the overflow was an inadequate CSO weir wall height. The estimated quantity/volume of the discharge to the Mill River was 2.08 million gallons. It should be noted that this did not appear to have been reported to CT DEEP in accordance with Section 8 of the Permit. Refer to Appendix C3 for GNHWPCA's CSO flow monitoring report summary table for this DWO event.

Finding 2: Potential unreported and unpermitted discharges (i.e., SSOs) have occurred in the GNHWPCA's wastewater collection system

a. Instances of potential unreported and unauthorized discharges

A document review conducted by the EPA Inspection Team as a component of this inspection indicated that GNHWPCA and CH2M Hill are not implementing an adequate process for recording and reporting wastewater overflows of the collection and conveyance system. Section 22a-430-3(k)(1) of the RCSA and SECTION 9, COMBINED SEWER OVERFLOWS, (A)(1)(a) of the Permit prohibit such events.

Section 22a-430-3(k) shall apply in all instances of bypass including bypass of the treatment plant or a component of the sewage collection system. This section states:

> *"The Permittee shall not at any time bypass the collection system or treatment facilities or any part thereof unless (A) (i) such bypass is unanticipated, unavoidable, and necessary to prevent loss of life, personal injury or severe property damage, and (ii) there were no feasible alternatives to the bypass, including but not limited to the use of auxiliary or back-up treatment facilities, retention of untreated wastes, stopping the discharges, or maintenance during normal periods of equipment downtime; or (B) the Permittee receives prior written approval of the bypass from the commissioner in order to perform essential maintenance, and the bypass does not cause effluent limitations to be exceeded."*

SECTION 9 (A)(1)(a) of the Permit states:

> *"Any other discharge from the outfalls listed in Attachment 3 constitutes a bypass and is subject to the requirements of Section 8 of this permit. "*

The EPA Inspection Team found, based on a spot check of GNHWPCA customer service request logs (January 2, 2012, through December 2, 2013) cross referenced with CT DEEP bypass reports (January 2, 2012, through December 12, 2013), that seven instances of potential unreported and unpermitted discharges (i.e., SSOs) had occurred. Refer to highlighted sections of the customer service request log documentation (Appendix D2) and the CT DEEP Bypass Query Greater New Haven (Jan. 2012 - Dec. 2013) provided in Appendix D3. Note the highlighted customer service log requests provided in Appendix D2 are not identified on the CT DEEP bypass reports query log provided in Appendix D3, potentially indicating that these SSOs were not reported as required by the Permit. Events from the GNHWPCA customer service request logs that might have been unreported SSOs occurred at the locations listed below in Table 2.

Table 2. List of Possible Unreported SSO Events

Date and Time	Reason/Location	Notes
1/10/2012 @ 14:04	Sewer Backup @ 164 SE	Crew checked the city line, was backed up. The crew jetted the line and restored flow. The DEEP was notified and Pro Klean contracted to clean and sanitize. A homeowner estimate of spill was 10 gallons of sewage in the basement.

Date and Time	Reason/Location	Notes
2/06/2012 @ 15:37	Sewer Backup @ 220 Hunt Lane East	Crew responded to a backup complaint. The line was backed up in the right of way behind 220 Hunt Lane. The flow was restored. The next morning the crew went back to finish cleaning the line. McVac was contracted to clean the manhole in the woods. OMI did not have the hose to reach the manhole. The manhole was pumped down and cleaned out. An old telephone was removed from the invert and two pieces of wood. The line was jetted again. Lyme was applied to the affected area. The DEEP was notified.
3/05/2012 @ 13:41	Sewer Backup, Chris Mc	Crew checked the city line, was surcharged. The crew jetted the line and restored flow. The DEEP was notified and Pro Klean contracted to clean and sanitize. Rick was notified due to the owner wanting to make a claim that didn't sound right. Shop rags and what looked like a shop rags were cleared from the line.
9/3/2012 @ 12:08	Back up 13 Glen Haven R, Sewer Backup	Crew checked the city line, was backed up. The line has a partial [sic] flume located on the New Haven / East Haven line. The flume was full of grease. The line was jetted and flow restored. Pro Klean was contracted to clean and sanitize. The DEEP was notified.
9/26/2012 @ 13:16	Sewer Backup @ 13 Glen Haven Road	Water backing up into sinks in basement. The crew found the line surcharged with heavy grease. The crew jetted the line and restored flow. The homeowner had water back up in a basement sink. The Owner had cleaned the sink. There was no spill on the floor. Rick spoke to the homeowner and told them we would do a follow up work order and let them know what was found.
11/8/2012 @ 15:57	Sewer Backup @ 35 VALL	Crew checked the city line, was backed up. The crew jetted the line through the canal to clear the line. The crew marked all the manhole covers in the canal area. The DEEP was notified and Pro Klean contacted to clean and sanitize.
4/01/2013 @ 10:12	Sewage out of manhole 331B	Heavy roots in line. The last manhole over is buried. The manhole cover outline is visible in the pavement. The road was wet around the outline of the manhole. The line was jetted and roots were removed. The crew will go back and open the cover and do a follow up cleaning. There were no homes affected.

b. Inadequate system for recording and reporting bypasses

The EPA Inspection Team found that the observed process for recordkeeping was not adequate and did not facilitate accurate recording and reporting of bypasses. The GNHWPCA and CH2M Hill were not following a written SOP for documenting incoming customer service requests. Refer to Appendix D1 for the CH2M Hill Customer Service Plan SOP dated April 2, 2008. Discussions with the plant operator who receives customer service calls revealed adequate training had not been provided and SOP procedures were not being fully implemented.

It was found that procedures for receiving customer service requests and creating work orders based on these requests did not occur according to the CH2M Hill SOP. Staff receiving customer service requests record information on unbound pieces of scrap paper prior to entering the data into the Computerized Maintenance Management System ("CMMS"), introducing a potential for misplaced or unaddressed customer service requests and/or SSOs. Recording customer information on scrap paper is not included in the CH2M Hill SOP. The CH2M Hill SOP indicates that a CH2M Hill employee (the plant operator) is responsible for notifying work crews of a customer service request and creating a work order in the CMMS. However, discussions with the plant operator indicated that GNHWPCA's director of operations typically notifies work crews of a service request. Work orders are usually created by the CH2M Hill plant operator, but are occasionally created by the GNHWPCA's director of operations. Due to the lack of following the SOP, customer service requests may potentially not generate a work order or be responded to by the collections crews, and SSOs may not be adequately identified, remediated, and reported.

The GNHWPCA did not maintain a structured and reliable process for utilizing the CMMS for customer service requests, bypass investigations, preventative maintenance, and sewer system cleanings. The EPA Inspection Team found, based on discussions with staff, a lack of SOPs and training for CMMS entry, coding, work order generation, and work order closeout. Specifically, a requested query of the CMMS for open work orders for the collections system from 2010 to 2013 identified approximately 300 open work orders. As a result, there was a lack of continuity, traceability, and resolution among customer service requests, work orders, and bypass reporting information, which creates a potential for bypasses to be unreported.

The EPA Inspection Team also found a lack of formal training and SOPs for collection system operators and crews. Collection system crews are dispatched with sewer system asset maps and equipment for preventative maintenance, cleaning, and/or bypass investigation and response. The crews document daily activities on written logs or checklists, but are not provided with the work order information, and have not been trained on GNHWPCA's *Overflow Emergency Response Plan and SSO Response Procedures*. These procedures are provided in Appendix D4. Based on discussions with collection system operators and field crews, the EPA Inspection Team found that these personnel were unaware of these procedures and had not received any formal training on the procedures. Field crews did not record their activities in a retrievable format, potentially causing data which could be used to analyze common issues or identify hot spots within the wastewater collection system to be lost. As a result, specific information required for CT DEEP bypass reporting may not be accurately obtained from the field.

Finding 3: Failure to develop and/or implement a formal operations and maintenance program

Based on discussions with GNHWPCA and CH2M Hill representatives during the course of the inspection, the EPA Inspection Team observed that the GNHWPCA lacks a formal operations and maintenance program for the wastewater collection and conveyance system. The observations were made primarily through discussions with GNHWPCA and CH2M Hill representatives. Specifically, GNHWPCA was unable to demonstrate that the following aspects of a maintenance program were being fully implemented:

- GNHWPCA lacks written SOPs for common activities, such as the cleaning and inspection of the wastewater collection and conveyance system, and a lack of documentation for related daily activities.
- GNHWPCA lacks a formal training program for collection system activities, including no written training program, no training manuals, and no employee training records.
- GNHWPCA lacks a comprehensive, large-diameter pipe cleaning program.
- GNHWPCA lacks a formal program for force main inspections and procedures for specific maintenance.
- GNHWPCA lacks SOPs, training, and documentation for identifying or removing "hot spots" from the developed lists of frequent pipe segment cleaning.

SECTION 1, GENERAL PROVISIONS, (B) of the Permit and RCSA's Section 22a-430-3(h), Duty to Mitigate, and Section 22a-430-3(f), Proper Operation and Maintenance, have been adopted by the CGS.

Section 22a-430-3(h), Duty to Mitigate, of the RCSA states:

> *"The Permittee shall take all reasonable steps to minimize or prevent any discharge in violation of the permit or any discharge which has a reasonable likelihood of adversely affecting human health or the environment."*

Section 22a-430-3(f), Proper Operation and Maintenance, of the RCSA states:

> *"The Permittee shall at all times properly operate and maintain all facilities and systems and parts thereof for wastewater collection, storage, treatment and control which are installed or used by the Permittee to achieve compliance with the terms and conditions of the permit. Proper operation and maintenance includes but is not limited to effective performance, adequate funding, and adequate operator staffing and training, including the employment of certified operators as may be required by the commissioner pursuant to sections 22a-416-1 through 22a-416-10 of the Regulations of Connecticut State Agencies, as amended, and adequate laboratory and process controls, including appropriate quality assurance procedures. The commissioner shall, as a condition of a permit or by issuance of an order in accordance with sections 22a-416 through 22a-471 of the Connecticut General Statutes as amended, require the installation and operation of back-up or auxiliary facilities or similar systems or the inventory of spare parts and appurtenances."*

As a result of the lack of a formal operations and maintenance program, GNHWPCA has a reactive approach to addressing problems within the collection system. While a large list of "hot spots" was maintained for each community, no evidence was observed of a program to systematically investigate and address many of the underlying causes of bypasses and thereby eliminate long-term problems associated with "hot spots" in the wastewater collection and conveyance system.

Finding 4: Failure to provide adequate backup or auxiliary power or appurtenances for the Truman CSO Storage Tank

The EPA Inspection Team found, based on field observations and discussions with GNHWPCA and CH2M Hill representatives, that the CSO control facility, the Truman CSO Storage Tank, did not have an alternate power source as discussed by Section 4(G) of the Permit.

SECTION 4, GENERAL LIMITATIONS AND OTHER CONDITIONS, (G) of the Permit states:

> *"The Permittee shall maintain an alternate power source adequate to provide full operation of all pump stations in the sewerage collection system and to provide a minimum of primary treatment and disinfection at the water pollution control facility to insure that no discharge of untreated wastewater will occur during a failure of a primary power source."*

The Truman CSO Storage Tank was constructed in 2006 by the GNHWPCA to control CSO discharges. Refer to Appendix I, Photograph 12 and Photograph 13. The tank consists of two cells, each with a volume of 2.5 million gallons. The two cells are connected via a flap valve. Following a wet weather event, and when flows at the Boulevard pump station and WPAF have subsided to dry weather conditions, two 3,500 gallon per minute (gpm) submersible pumps empty the storage tank, pumping the contents back to the Boulevard trunk sewer. Neither cell of the storage tank had pump redundancy, nor were spare pumps and equipment readily available to use in the event of a power outage or pump failure. A summary of all of the GNHWPCA's pump stations and those configured with auxiliary generators is provided in Appendix E.

Finding 5: Failure to regularly inspect and maintain CSO regulators

The EPA Inspection Team found that CSO regulators were not being inspected and maintained on a routine basis.

SECTION 4, GENERAL LIMITATIONS AND OTHER CONDITIONS, (O) of the Permit states:

> *"The Permittee shall operate and maintain all processes as installed in accordance with the approved plans and specifications and as outlined in the associated operation and maintenance manual."*

SECTION 1, GENERAL PROVISIONS, (B) of the Permit and Section 22a-430-3(h), Duty to Mitigate, of the RCSA state:

> *"The Permittee shall take all reasonable steps to minimize or prevent any discharge in violation of the permit or any discharge which has a reasonable likelihood of adversely affecting human health or the environment."*

Based on records reviewed and discussions with GNHWPCA and CH2M Hill representatives, the EPA Inspection Team found that the (approximately) 24 CSO regulators in the wastewater collection system were not being routinely inspected. Specifically, the *Long Term Control Plan (LTCP) and Nine Minimum Controls (NMCs) Report* prepared by CH2M Hill, dated June 1998, state that all overflow structures will be inspected once each month for the following: flows, weirs heights and flow levels, and physical condition (Refer to Appendix F for an excerpt from the LTCP, NMCs report). There was no information provided during the inspection demonstrating that the CSOs are being inspected by the GNHWPCA on a regular basis. GNHWPCA's reactive approach to maintaining CSO outfalls and regulators could be a contributing factor to the dry weather overflows discussed in Finding 1.

Finding 6: Failure to adequately maintain pump station in accordance with routine preventative maintenance procedures

The GNHWPCA and CH2M Hill had not adequately maintained the East Street pump station for proper operation nor did it appear that routine preventative maintenance procedures had been adequately implemented.

SECTION 1, GENERAL PROVISIONS, (B) of the Permit and Section 22a-430-3(f), Proper Operation and Maintenance, of the RCSA have been adopted by the CGS.

Section 22a-430-3(f), Proper Operation and Maintenance, of the RCSA states:

> *"The Permittee shall at all times properly operate and maintain all facilities and systems and parts thereof for wastewater collection, storage, treatment and control which are installed or used by the Permittee to achieve compliance with the terms and conditions of the permit. Proper operation and maintenance includes but is not limited to effective performance, adequate funding, and adequate operator staffing and training, including the employment of certified operators as may be required by the commissioner pursuant to sections 22a-416-1 through 22a-416-10 of the Regulations of Connecticut State Agencies, as amended, and adequate laboratory and process controls, including appropriate quality assurance procedures. The commissioner shall, as a condition of a permit or by issuance of an order in accordance with sections 22a-416 through 22a-471 of the Connecticut General Statutes as amended, require the installation and operation of back-up or auxiliary facilities or similar systems or the inventory of spare parts and appurtenances."*

Based on a site visit to the East Street pump station and discussions with GNHWPCA and CH2M Hill representatives, the EPA Inspection Team found that the pump station had not been adequately maintained. Only two of four grit collectors were in use at the time of the inspection. It was communicated to the EPA Inspection Team that wet weather events always caused the chain-driven grit collectors to require maintenance, necessitating pulling some of the grit removal system offline. It should be noted that no scheduled replacement was anticipated for these grit collectors. The grit removal system was observed to be deteriorated (e.g., rusted through) and raw sewage and sanitary waste were observed on the floor of the pump station adjacent to the grit removal conveyor belt during the inspection (refer to Appendix K, Photographs 2 and 3).

The weekly preventative maintenance schedule and most recent completed work order for weekly preventative maintenance at the East Street pump station were reviewed as a component of the inspection. It should be noted that this completed weekly preventative maintenance work order (MAINT-67056), dated December 9, 2013 (approximately one week prior to the inspection), documented that all preventative maintenance activities had been completed and no issues or corrective actions were identified. Work order items 75, 76, 78, 79, 80, 81, and 101 stated that all debris were cleaned from around the conveyors, grit collectors were verified as in operation, and all pump station floors were swept; however, observations made during the inspection indicated that these activities may not have been implemented in the field. The East Street pump station weekly preventative maintenance schedule and completed work order MAINT-67056 are provided in Appendix G.

It is worth noting that the grit collectors were found to be in poor to very bad condition in the *Greater New Haven Water Pollution Control Authority Wastewater Treatment System Condition Assessment and Capital Program Report* prepared by Malcolm-Pirnie, dated January 2012. This report was based on inspections performed in September 2011 and it may be an indication of the extended length of time over which the GNWPCA has not been implementing appropriate preventative maintenance. An excerpt from the January 2012 Malcolm-Pirnie report is provided in Appendix H.

Finding 7: Failure to notify Commissioner of changes, alterations, and/or eliminations of CSO designations

The GNHWPCA had failed to notify the Commissioner within 30 days of becoming aware of conflicts with the active CSO designations provided in Attachment 3 of the Permit.

SECTION 9, COMBINED SEWER OVERFLOWS, (A) of the Permit states:

> *"The locations of outfalls and regulators listed in Attachment 3 are taken from Department records. Any information on the locations of any outfalls and regulators in addition to or in conflict with the information in Attachment 3 shall be submitted to the Commissioner within 30 days of the date of issuance of this permit or the date the Permittee becomes aware of such information, whichever is earlier."*

Attachment 3 of the Permit identified 34 active CSO locations. GNHWPCA representatives stated in discussions and in a presentation that there were 18 permitted CSOs (14 active, 4 closed) and 24 CSO regulators (19 active, 5 closed) at the time of the inspection. In the most recent status report provided to CT DEEP, the *CSO LTCP Annual Status Report*, dated June 20, 2013, GNHWPCA reported that there were 17 active CSO outfalls and 21 inactive / closed CSO outfalls, as well as 21 active CSO regulators and 24 inactive / closed CSO regulators. Attachment 3 of the Permit and GNHWPCA's *CSO LTCP Annual Status Report* are provided in Appendix I.

In at least one case, GNHWPCA reported to CT DEEP that a CSO regulator was closed when it remained open. In the *CSO LTCP Annual Status Report*, dated June 20, 2013, GNHWPCA reported that regulator 031 was closed. Work orders provided by GNHWPCA indicate that the regulator was open when it was investigated on July 26, 2013, following a citizen complaint. Work orders provided by GNHWPCA indicate the regulator was closed on October 10, 2013. Copies of work orders relating to the closure of regulator 031 are included in Appendix J.

V. ASSETS VISITED

The following table presents observations the EPA Inspection Team made at assets visited during the inspection. Note that this table does not provide a comprehensive list of all asset/locations visited during the inspection. The photograph log is provided in Appendix K.

Table 3. Summary of Observations at GNHWPCA Assets Visited

Asset/Location	Date of Inspection	Photo Log Reference	Observations/Description
East Street Pump Station	December 17, 2013	1, 2, 3, 4	Only two of four grit collectors were in use. Grit collectors No. 3 and No. 4 were observed to be offline for maintenance during the inspection. As stated by GNHWPCA and CH2M Hill representatives, wet weather events always cause the chain-driven grit collectors to require maintenance. It should be noted that no scheduled replacement is anticipated for these grit collectors. The grit channels are connected to a supervisory control and data acquisition (SCADA) system; however, the grit equipment must be manually activated. The grit removal system was deteriorated (e.g., rusted through) and raw sewage and sanitary waste were observed on the floor of the pump station adjacent to the grit removal conveyor belt.
CSO 021 Regulator and Outfall	December 17, 2013	5, 6, 7	CSO Regulator 021 and CSO Outfall 021 near the East Street pump station were observed. A flow meter was observed in the regulator and a newly installed tidal gate was observed at the outfall. The discharge point to the New Haven Harbor was also observed.

Asset/Location	Date of Inspection	Photo Log Reference	Observations/Description
Hamden Public Library Backup Response Service Call	December 17, 2013	8, 9	The EPA Inspection Team observed the field crew's response to a service call for a basement backup at the Hamden public library. Note that the blockage was determined to be within the lateral and was not the responsibility of the GNHWPCA; however, a courtesy sewer main line cleaning was conducted.
Boulevard Pump Station	December 17, 2013	10	Two, new, Duperon®, flex-ring bar screens, one for each inlet channel to the pump station, were being installed during the inspection. One of the bar screen had been installed and was undergoing final testing. One of four grit removal systems was in use; three were out of service for mechanical issues.
CSO Outfall 024	December 17, 2013	11	The CSO Outfall 024, which discharges to the New Haven Harbor, and associated outfall signage was observed during the inspection.
Truman CSO Storage Tank	December 17, 2013	12, 13	The EPA Inspection Team conducted a site visit to the Truman CSO Storage Tank, a CSO control facility constructed as part of the GNHWPCA's long-term efforts to control CSO discharges. The storage tank did not contain pump redundancy for the two cells, spare pumps and equipment were not readily available, and the CSO control facility was not configured with a portable or in-situ auxiliary power capabilities.
James Street Siphon and CSO Outfall 015	December 17, 2013	14	The signage associated with CSO Outfall 015 to the Quinnipiac River was not readily observed near the outfall location, which is also a popular fishing spot. GNHWPCA and CH2M Hill representatives stated that vandalism was an issue with the signage at this outfall.